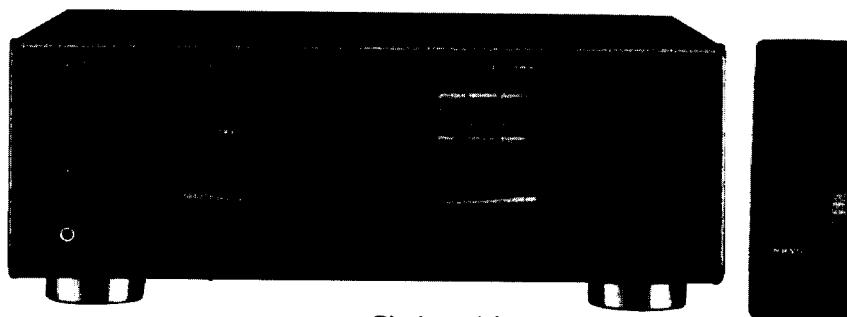


ONKYO SERVICE MANUAL

QUARTZ SYNTHESIZED TUNER AMPLIFIER

MODEL TX-SV515PROII



Black model

BMD, BMDN, BMDC	120V AC, 60Hz
BMP	230V AC, 50Hz
BMW	120/220V AC, 50/60Hz
BMQA	240V AC, 50Hz

SAFETY-RELATED COMPONENT WARNING!!
 COMPONENTS IDENTIFIED BY MARK Δ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.
 MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

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SPECIFICATIONS

AMPLIFIER SECTION

Power Output:	Stereo mode
	Front L/R channels
	80 watts per channel min. RMS. at 8 ohms, both channels driven, from 20 Hz to 20,000 Hz, with no more than 0.08% total harmonic distortion.
Continuous Power output:	
	2 x 115 watts 4 ohms 1 kHz DIN
	2 x 90 watts 8 ohms 1 kHz DIN
	Surround mode and Multi source mode
	Front L/R and center channels
	55 watts per channel min. RMS. at 8 ohms 1,000 Hz, with no more than 0.08% total harmonic distortion.
Rear or Remote channels	
	20 watts per channel min. RMS. at 8 ohms 1,000 Hz, with no more than 0.8% total harmonic distortion.
Total Harmonic Distortion:	0.08% at rated power (FRONT)
IM Distortion:	0.08% at rated power (FRONT)
Damping Factor:	60 at 8 ohms (FRONT)
Sensitivity and Impedance:	Phono: 2.5 mV/50 kohms CD/Tape Play: 150 mV/50 kohms Tape Rec: 150 mV/2.2 kohms
Phono Overload:	120 mV RMS. at 1,000 Hz, 0.5% THD.
Frequency Response:	20 to 30,000 Hz, +/-1 dB
RIAA Deviation:	20 to 20,000 Hz, +/-0.8 dB
Tone Control:	BASS: +/-10 dB at 100 Hz TREBLE: +/-10 dB at 10,000 Hz
Signal to Noise Ratio:	PHONO: 80 dB (IHF A, 5 mV input) CD/TAPE: 100 dB (IHF A)
Muting:	- ∞ dB

VIDEO SECTION

Signal sensitivity and impedance
VDP/VCR input, output: 1 Vp-p, 75 ohms

TUNER SECTION

FM: (other models)

Tuning Range:	87.5 — 108.0 MHz (50 kHz steps)
Usable Sensitivity:	Mono: 11.2 dBf, 1.0 µV, 75 ohms 0.9 µV (S/N 26 dB, 40 kHz Devi.) 75 ohms DIN
	Stereo: 18.0 dBf, 2.2 µV, 75 ohms 23 µV (S/N 46 dB, 40 kHz Devi.) 75 ohms DIN
50dB Quieting Sensitivity:	Mono: 18.0 dBf, 2.2 µV, 75 ohms Stereo: 37.2 dBf, 20 µV, 75 ohms
Capture Ratio:	1.5 dB
Image Rejection Ratio:	85 dB
IF Rejection Ratio:	90 dB
Signal-to-Noise Ratio:	Mono: 73 dB Stereo: 67 dB
Selectivity:	50 dB DIN (±300 kHz, 40 kHz Devi.)
AM Suppression Ratio:	50 dB
Harmonic Distortion:	Mono: 0.15 % Stereo: 0.25 %
Frequency Response:	30 — 15,000 Hz ±1.5 dB
Stereo Separation:	45 dB at 1 kHz

AM:

Tuning Range:	European models 522 — 1611 kHz (9 kHz steps) USA, and Canadian models 530 — 1710 kHz (10 kHz steps) Saudi Arabia and worldwide models 531 — 1602 kHz (9 kHz steps)
Usable Sensitivity:	30 µV
Image Rejection Ratio:	40 dB
IF Rejection Ratio:	40 dB
Signal-to-Noise Ratio:	40 dB
Total Harmonic Distortion:	0.7 %

TUNER SECTION

FM: (120V model)

Tuning Range:	87.5 — 108.0 MHz (50 kHz steps)
Usable Sensitivity:	Mono: 11.2 dBf, 2.0 µV Stereo: 17.2 dBf, 4.0 µV
50dB Quieting Sensitivity:	Mono: 17.2 dBf, 4.0 µV Stereo: 37.2 dBf, 40 µV
Capture Ratio:	1.5 dB
Image Rejection Ratio:	40 dB
IF Rejection Ratio:	90 dB
Signal-to-Noise Ratio:	Mono: 73 dB Stereo: 67 dB
Alternate Channel Attenuation:	55 dB
AM Suppression Ratio:	50 dB
Total Harmonic Distortion:	Mono: 0.15 % Stereo: 0.25 %
Frequency Response:	30 — 15,000 Hz +/-1.5 dB
Stereo Separation:	45 dB at 1 kHz/30 dB at 100 — 10,000 Hz
Muting Level:	17.2 dBf, 4.0 µV

GENERAL

Dimensions (W x H x D):	455 x 170 x 388 mm 17-15/16" x 6-11/16" x 15-5/16"
Weight:	13.5 kg (29.8 lbs)

SERVICE PROCEDURES

1. Replacing the fuses

For continued protection against fire hazard, replace only with same type and same rating fuse.

Circuit no.	Part no.	Description
F901	252166Y	△6.3A-UL/T-237,Primary fuse <D/W>
F902	252076	△3.15A-SE-EAK,Primary fuse <P/W/Q>
F903	252075	△2.5A-SE-EAK,AC outlet fuse <P>
F911,F912	252166Y	△6.3A-UL/T237,Secondary fuse <D>
	252079	△6.3A-SE-EAK,Secondary fuse <P/W/Q>

NOTE: <D> :Only 120V model

<P> :Only 230V model

<W> :Only Worldwide model

<P> :Only 240V model

2. Change of FM/AM band step.

With the exception of the Worldwide model, a BAND STEP selector switch is not provided.

(AM)

BAND STEP	R724	D711
10kHz→9kHz	Addition	Addition
9kHz→10kHz	Eliminated	Eliminated

In R724 Carbon resistor 1 kΩ (Part No.417341024) is used.

In D711 Diode 1SS270A (Part No.223205) is used.

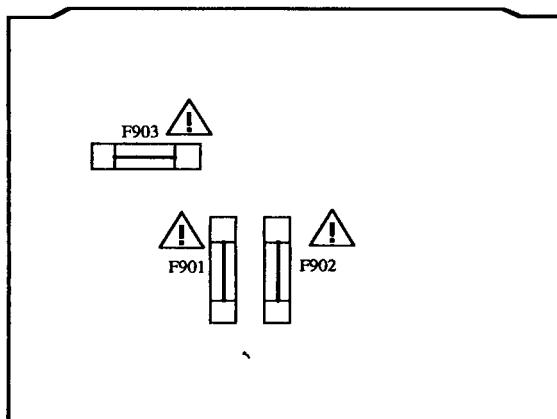
—Worldwide model—

Worldwide models are equipped with a step band selector switch. This switch is located on the back panel. This switch is set to 9kHz (AM) at the factory, but may have to be reset to 10kHz depending on the area where the unit is used.

AM step

Europe: 9kHz

U.S.A: 10kHz



POWER SUPPLY CIRCUIT PC BOARD



MAIN CIRCUIT PC BOARD

3. Memory preservation

This unit does not require memory preservation batteries. A built-in memory power back-up system preserves contents of the memory during power failures and even when the unit is unplugged. The unit must be plugged in and the power switch turned on and off once in order to charge the back-up system. Note that since this is not a permanent memory the power switch must be turned on and off a few times each month to keep the back-up system operative. The period of time during which memory contents are preserved after power has last been turned off varies depending on climate and placement of the unit. On the average, memory contents are protected over a period of 3 to 4 weeks (a minimum of 2 weeks) after the last time power has been turned off. This period is shorter when the unit is exposed to very high humidity or used in an area with an extremely humid climate.

4. Safety-check out

(Only U.S.A. model)

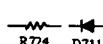
After correcting the original service problem perform the following safety check before releasing the set to the customer.

Connect the insulating-resistance tester between the plug of power supply cord and terminal GND on the back panel. Specifications: 3.3 Mohm ±10% at 500V.

5. Change of voltage

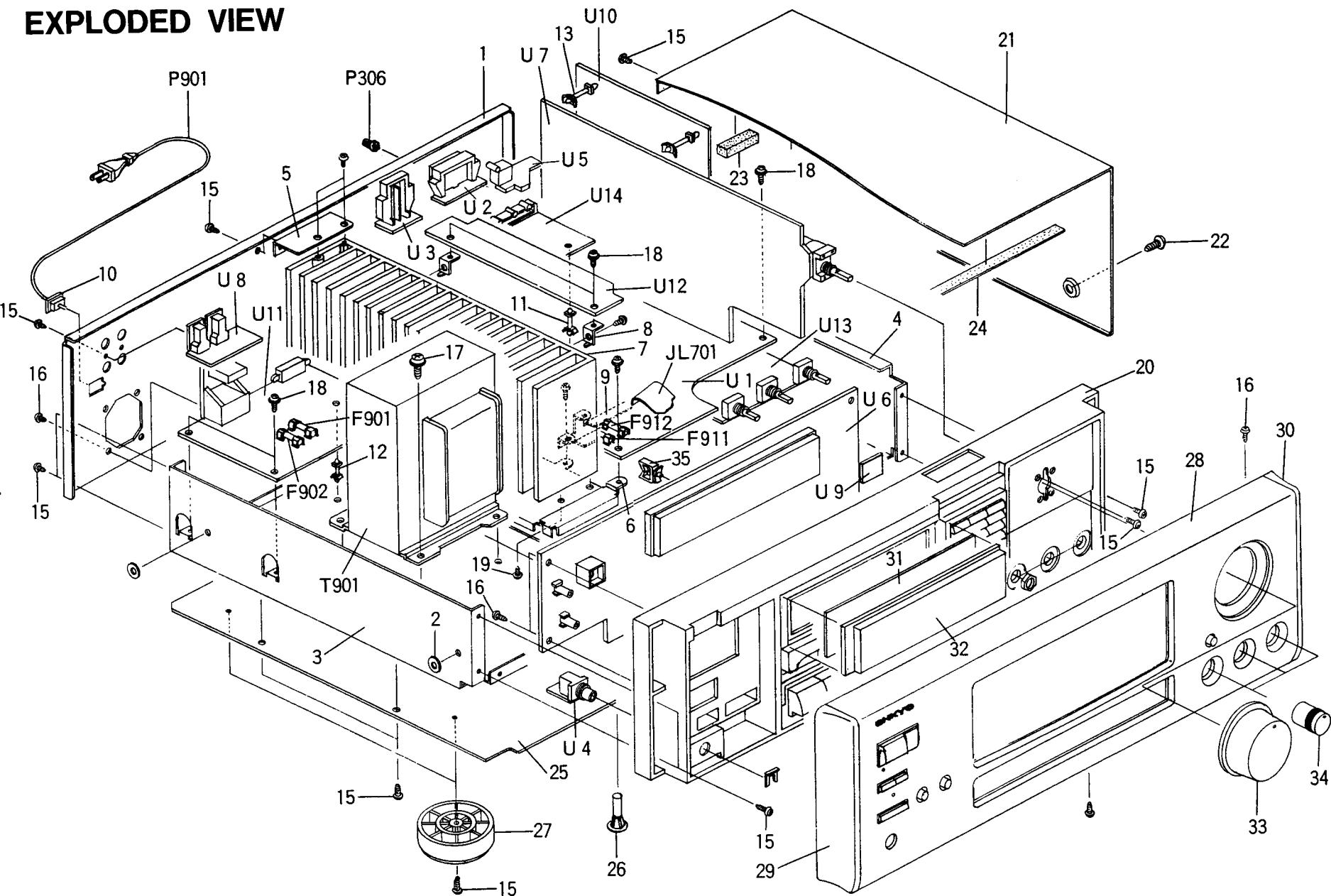
Worldwide models are equipped with a voltage selector to conform with local power supplies. This switch is located on the back panel. Be sure to set this switch to match the voltage of the power supply in your area before turning the power switch on.

This switch is set to 220V at the factory. Voltage is changed by sliding the groove in the switch with the screwdriver to the right or left. Confirm that the switch has been moved all the way to the right or left before turning the power switch on.



DISPLAY CIRCUIT PC BOARD

EXPLODED VIEW

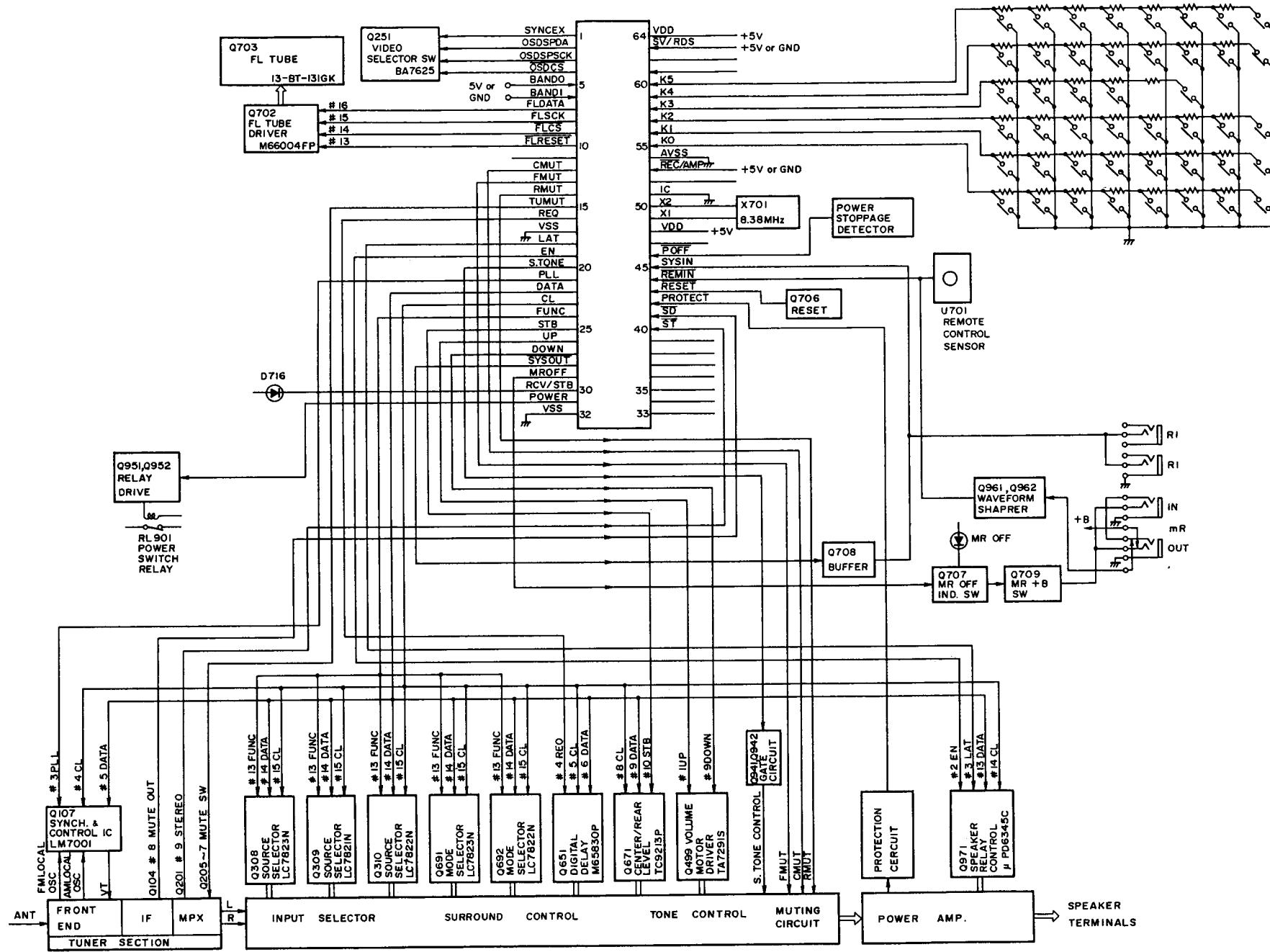


PARTS LIST

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
1	27121921Y	Rear panel <D>	JL701	2041322010 or 2047322012	NCFC1-322010 or NCFC7-322012,flexible flat cable	U3	1A542594-5Y	NAETC-4694-5,Speaker terminal
	27121922Y	Rear panel <P>					1A542594-5AY	pc board ass'y <D>
	27121923Y	Rear panel <W>	P306	25060044	Terminal,ground		1A542594-5AY	NAETC-4694-5A,Speaker terminal
	27121924Y	Rear panel <Q>	P901	253163Y or 253174Y	▲ AS-UC-6 #18, ▲ Power supply cord <D/PX>	U4	1A542595-5Y	NAETC-4695-5,Headphone terminal
2	27270212	Spacer <P/W/Q>		253175Y or 253164Y	▲ AS-CEE-2, ▲ Power supply cord <P/W>	U5	1A542596-5Y	pc board ass'y
3	27130717AY	Bracket,power transformer		253188HIT	▲ AS-SAA,Power supply cord <Q>	U6	1A542597-5Y	NAETC-4696-5,Output terminal
4	27115255Y	Side bracket	P902,P903	25050904	▲ NSCT-2P697,AC outlet <Q>		1A542597-5AY	pc board ass'y
5	27141607AY	Retainer H	Q505,Q506	2201653, 2201654, 2201655, 2202272 or 2202273	* 2SC3856-O, * 2SC3856-Y, * 2SC3856-P, * 2SC3907-R or * 2SC3907-O,Power transistors		1A542597-5AY	NADIS-4697-5,Display circuit
6	27130718AY	Bracket H		2201663, 2201664, 2201665, 2202262 or 2202263	* 2SA1492-O, * 2SA1492-Y, * 2SA1492-P, * 2SA1516-R or * 2SA1516-O,Power transistors	U7	1A542598-5Y	NADIS-4697-5A,Display circuit
7	27160323Y	Radiator		2202253, 2202254, 2202256, 2202502 or 2202503	* 2SC4467-O, * 2SC4467-Y, * 2SC4467-P, * 2SC3181N-R or * 2SC3181N-O,Power transistor		1A542598-5AY	pc board ass'y <P/Q>
8	27141530A	Retainer HS-2		2202253, 2202254, 2202256, 2202502 or 2202503	* 2SC4467-O, * 2SC4467-Y, * 2SC4467-P, * 2SC3181N-R or * 2SC3181N-O,Power transistor	U8	1A542599-5Y	NAETC-4699-5,RI/MR terminal
9	27141532	Retainer PD-1		2202243, 2202244, 2202246, 2202492 or 2202493	* 2SA1694-O, * 2SA1694-Y, * 2SA1694-P, * 2SA1264N-R or * 2SA1264N-O,Power transistor		1A542599-5BY	pc board ass'y <D/P/Q>
10	27300750	▲ Cord,bushing	Q507,Q508	2202243, 2202244, 2202246, 2202492 or 2202493	* 2SA1694-O, * 2SA1694-Y, * 2SA1694-P, * 2SA1264N-R or * 2SA1264N-O,Power transistor	U7	1A542598-5Y	NAAF-4698-5,Surround circuit
11	27190369	KGLS-22S,Holder		2202244, 2202246, 2202492 or 2202493	* 2SA1694-O, * 2SA1694-Y, * 2SA1694-P, * 2SA1264N-R or * 2SA1264N-O,Power transistor		1A542598-5AY	pc board ass'y <D/W/Q>
12	27190480	KGLS-8S,Holder		2202063, 2202064 or 2202066	* 2SC4511-O, * 2SC4511-Y or * 2SC4511-P,Power transistors		1A542501-5Y	NAAF-4698-5A,Surround circuit
13	27190062	KGLS-12S,Holder		2202063, 2202064 or 2202066	* 2SC4511-O, * 2SC4511-Y or * 2SC4511-P,Power transistors	U8	1A542599-5Y	NAETC-4699-5,RI/MR terminal
14	801433	3SMS8W.SW+14B(BC),Sems screw	Q543	2202253, 2202254, 2202256, 2202502 or 2202503	* 2SC4467-O, * 2SC4467-Y, * 2SC4467-P, * 2SC3181N-R or * 2SC3181N-O,Power transistor		1A542599-5BY	pc board ass'y <P>
15	834430088	3TTS+8B(BC),Self-tapping screw		2202253, 2202254, 2202256, 2202502 or 2202503	* 2SC4467-O, * 2SC4467-Y, * 2SC4467-P, * 2SC3181N-R or * 2SC3181N-O,Power transistor	U9	1A542500-5Y	NASW-4700-5,STC switch pc board ass'y
16	833430080	3TTP+8P(BC),Self-tapping screw		2202253, 2202254, 2202256, 2202502 or 2202503	* 2SC4467-O, * 2SC4467-Y, * 2SC4467-P, * 2SC3181N-R or * 2SC3181N-O,Power transistor	U10	1A542501-5Y	NARF-4701-5,Tuner circuit
17	830440089	4TTC+8C(BC),Self-tapping screw		2202253, 2202254, 2202256, 2202502 or 2202503	* 2SC4467-O, * 2SC4467-Y, * 2SC4467-P, * 2SC3181N-R or * 2SC3181N-O,Power transistor		1A542500-5Y	pc board ass'y <D>
18	831130088	3TTW+8B,Self-tapping screw		2202253, 2202254, 2202256, 2202502 or 2202503	* 2SC4467-O, * 2SC4467-Y, * 2SC4467-P, * 2SC3181N-R or * 2SC3181N-O,Power transistor	U11	1A542502-5Y	NARF-4701-5A,Tuner circuit
19	834430108	3TTS+10B(BC),Self-tapping screw		2202253, 2202254, 2202256, 2202502 or 2202503	* 2SC4467-O, * 2SC4467-Y, * 2SC4467-P, * 2SC3181N-R or * 2SC3181N-O,Power transistor		1A542501-5AY	pc board ass'y <P/Q>
20	27110754FY	Front bracket ass'y		2202253, 2202254, 2202256, 2202502 or 2202503	* 2SC4467-O, * 2SC4467-Y, * 2SC4467-P, * 2SC3181N-R or * 2SC3181N-O,Power transistor	U12	1A542503-5Y	NARF-4701-5B,Tuner circuit
21	28184535Y	Top cover	Q544	2202243, 2202244, 2202246, 2202492 or 2202493	* 2SA1694-O, * 2SA1694-Y, * 2SA1694-P, * 2SA1264N-R or * 2SA1264N-O,Power transistor		1A542501-5AY	NARF-4701-5A,Tuner circuit
22	838440089	4TTB+8C(BC),Self-tapping screw		2202243, 2202244, 2202246, 2202492 or 2202493	* 2SA1694-O, * 2SA1694-Y, * 2SA1694-P, * 2SA1264N-R or * 2SA1264N-O,Power transistor		1A542501-5BY	pc board ass'y <P/Q>
23	28141132	61×60×10,Cushion		2202063, 2202064 or 2202066	* 2SC4511-O, * 2SC4511-Y or * 2SC4511-P,Power transistors		1A542501-5BY	NARF-4701-5B,Tuner circuit
24	28140680	0.51×390×10,Cushion		2202063, 2202064 or 2202066	* 2SC4511-O, * 2SC4511-Y or * 2SC4511-P,Power transistors		1A542502-5Y	pc board ass'y <W>
25	27170300AY	Bottom panel		2202063, 2202064 or 2202066	* 2SC4511-O, * 2SC4511-Y or * 2SC4511-P,Power transistors	U11	1A542502-5Y	NAPS-4702-5,Power supply circuit
26	27190926	KGLS-18RF,Holder	Q575,Q576	2202063, 2202064 or 2202066	* 2SC4511-O, * 2SC4511-Y or * 2SC4511-P,Power transistors		1A542502-5AY	pc board ass'y <D>
27	27175251AY	Leg		2202063, 2202064 or 2202066	* 2SC4511-O, * 2SC4511-Y or * 2SC4511-P,Power transistors		1A542502-5AY	NAPS-4702-5A,Power supply circuit
28	1A542121Y	Front panel ass'y	Q577,Q578	2202053, 2202054 or 2202056	* 2SA1725-O, * 2SA1725-Y or * 2SA1725-P,Power transistors		1A542502-5AY	pc board ass'y <P>
28A	27267822Y	Guide VOL		2202053, 2202054 or 2202056	* 2SA1725-O, * 2SA1725-Y or * 2SA1725-P,Power transistors		1A542502-5BY	NAPS-4702-5B,Power supply circuit
28B	27267824Y	Guide POW		2202053, 2202054 or 2202056	* 2SA1725-O, * 2SA1725-Y or * 2SA1725-P,Power transistors		1A542502-5BY	pc board ass'y <W>
29	28125251AY	End cap L		2202053, 2202054 or 2202056	* 2SA1725-O, * 2SA1725-Y or * 2SA1725-P,Power transistors		1A542502-5C	NAPS-4702-5C,Power supply circuit
30	28125252AY	End cap R	T901	2300891Y	▲ NPT-1168D,Power transformer <D>		1A542502-5C	pc board ass'y <Q>
31	28191661	Clear plate		2300892Y	▲ NPT-1168P,Power transformer <P>		1A542502-5D	NAPS-4702-5D,Power supply circuit
32	28133299Y	Back plate		2300893Y	▲ NPT-1168DG,Power transformer <W>		1A542502-5D	pc board ass'y <P>
33	28324775A	Knob VOLUME		2300894Y	▲ NPT-1168Q,Power transformer <Q>		1A542503-5Y	NAAF-4703-5,Power supply circuit
34	28324376A	Knob TONE	U1	1A542592-5Y	NAAR-4692-5,Main circuit pc board ass'y <D>		1A542503-5AY	NAAF-4703-5A,Power supply circuit
35	880009	Plastic rivet <P>		1A542592-5AY	NAAR-4692-5A,Main circuit pc board ass'y <P/W/Q>		1A542503-5AY	pc board ass'y <P/W/Q>
F901	252166Y	▲ 6.3A-UL/T-237,Primary fuse <D/W>		U2	1A542593-5Y	NAETC-4693-5,Center speaker terminal	1A542504-5Y	NAAF-4704-5,Tone control circuit
F902	252076	▲ 3.15A-SE-EAK,Primary fuse <P/W/Q>		1A542593-5AY	NAETC-4693-5A,Center speaker terminal	U13	1A542504-5Y	pc board ass'y
F903	252075	▲ 2.5A-SE-EAK,AC outlet fuse <P>				U14	1A542505-5Y	NAETC-4705-5,Video circuit pc board ass'y
F911,F912	252166Y	▲ 6.3A-UL/T-237,Secondary fuse <D>						NOTE: <D>:120V model only
	252079	▲ 6.3A-SE-EAK,Secondary fuse <P/W/Q>						<P>:230V model only
								<PX>:PX model only
								<W>:Worldwide model only

NOTE: THE COMPONENTS IDENTIFIED BY MARK ▲ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

MICROPROCESSOR DESCRIPTIONS



Terminal Description

Pin No.	Function	I/O	Description												
1	SYNCEX	O	Video signal control A output terminal.												
2	OSDSPDA	O	Video signal control D output terminal.												
3	OSDSPSCK	O	Video signal control B output terminal.												
4	OSDCS	O	Video signal control C output terminal.												
5	BAND0	I	Initializing input terminal for FM/AM band region.												
6	BAND1	I													
7	FLSDATA	O	Connect to the terminal SDATA of Fluorescent tube driver M66004FP. (Q702)												
8	FLSCK	O	Connect to the terminal SCK of Fluorescent tube driver M66004FP.												
9	FLCS	O	Connect to the terminal CS of Fluorescent tube driver M66004FP.												
10	FLRST	O	Connect to the terminal RESET of Fluorescent tube driver M66004FP.												
11	PLAYER	O	Player control output terminal. Not used.												
12	CENTMUT	O	Muting output terminal for the center amplifier.												
13	FRONTMUT	O	Muting output terminal for the front amplifier.												
14	REARMUT	O	Muting output terminal for the rear amplifier.												
15	TU MUT	O	Muting output terminal for the tuner.												
16	REQ	O	Connect to the terminal REQ of Digital delay M65830P.(Q651)												
17	VSS	-	Ground terminal												
18	LAT	O	Connect to the terminal LAT of Output extended IC μ PD6345C.(Q971)												
19	EN	O	Connect to the terminal EN of Output extended IC μ PD6345C.												
20	S.TONE	O	Selective tone control output terminal.												
21	PLL	O	Connect to the terminal CE of PLL IC.(Q107)												
22	DATA	O	Connect to the terminal DI of Analog switches LC7821N,LC7822N, and LC7823N, the terminal DATA of PLL IC LM7001, the terminal DATA of Electro volume TC9213P, the terminal DATA of Digital delay M65830P, and the terminal SIN of Output extended IC μ PD6345C.												
23	CL	O	Connect to the terminal CL of Analog switches LC7821N,LC7822N, and LC7823N, the terminal CL of PLL IC LM7001, the terminal CK of Electro volume TC9213P, the terminal SCK of Digital delay M65830P, and the terminal SCK of Output extended IC μ PD6345C.												
24	FUNC	O	Connect to the terminal CE of Analog switches LC7821N,LC7822N, and LC7823N. (Q309,Q310,Q692,Q308 and Q691)												
25	STB	O	Connect to the terminal STB of Electro volume TC9213P. (Q671)												
26	VOLUP	O	Volume UP/DOWN control output. (Q499) <table border="1" style="margin-left: 20px;"> <tr> <td>Operation</td> <td>#27</td> <td>#26</td> </tr> <tr> <td>Stop</td> <td>H</td> <td>H</td> </tr> <tr> <td>Volume up</td> <td>L</td> <td>H</td> </tr> <tr> <td>Volume down</td> <td>H</td> <td>L</td> </tr> </table>	Operation	#27	#26	Stop	H	H	Volume up	L	H	Volume down	H	L
Operation	#27	#26													
Stop	H	H													
Volume up	L	H													
Volume down	H	L													
27	VOLDOWN	O													
28	SYSOUT	O	System code output terminal.												

VIDEO SIGNAL CONTROL OUTPUT

Input Selector

#1	#3	SOURCE
L	L	VIDEO-3
H	L	VIDEO-2
L	H	
H	H	VIDEO-1

Recording Selector

#4	#2	SOURCE
L	L	VIDEO-3
H	L	VIDEO-2
L	H	
H	H	VIDEO-1
Same as #1	Same as #3	Other position
Same as #1	Same as #3	Multi mode

Pin No.	Function	I/O	Description
29	<u>MR</u>	O	MULTI ROOM indicator control output.
30	<u>STBY/RECV</u>	O	STAND-BY/RECEIVED indicator control output.
31	<u>POWER</u>	O	Power switch relay control output.
32	<u>VSS</u>		Ground terminal.
33	—	O	Not used.
34	—	O	Not used.
35	—	O	Not used.
36	—	O	Not used.
37	—	O	Not used.
38	—	O	Not used.
39	—	I	Not used.
40	<u>STEREO</u>	I	Stereo detection input terminal.
41	<u>SD</u>	I	Broadcast detection input terminal.
42	<u>PROTECT</u>	I	Protection circuit operation detection input terminal.
43	<u>RESET</u>	I	System reset input terminal.
44	<u>REMIN</u>	I	Remote control signal input terminal.
45	<u>SYSIN</u>	I	System code input terminal.
46	<u>POFF</u>	I	Detection input terminal for the stoppage of electric current.
47	—	I	Not used.
48	<u>VDD</u>		Power supply terminal.(+5V)
49	<u>X2</u>		Ceramic resonator connection terminal for the main system clock .
50	<u>X1</u>		Connect the ceramic resonator 8.38 MHz.
51	<u>IC</u>		Connect to the ground terminal.
52	<u>XT2</u>		Not used.
53	<u>XT1</u>		
54	<u>AVSS</u>		Ground terminal of A/D converter.
55	<u>K0</u>	I	Operation key connection terminals.
56	<u>K1</u>	I	
57	<u>K2</u>	I	
58	<u>K3</u>	I	
59	<u>K4</u>	I	
60	<u>K5</u>	I	
61	—		Not used.
62	<u>MODE</u>	I	Initializing input terminal for Receiver or Amplifier.
63	<u>AVDD</u>		Analogue power supply terminal of A/D converter. (+5V)
64	<u>AVREF</u>		Reference voltage input terminal of A/D converter.

Initializing Input

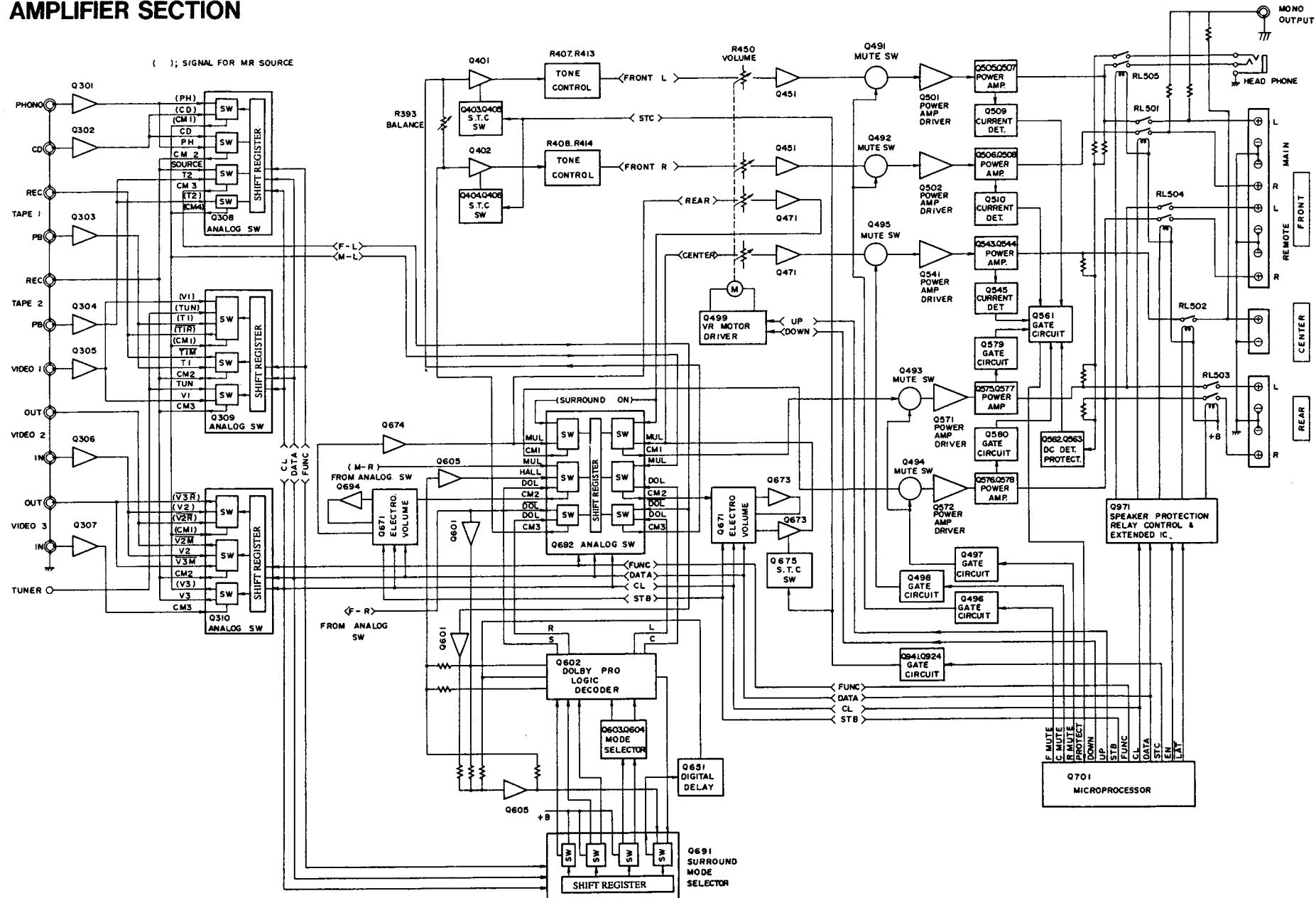
#7,#6

BAND1	BAND0	Regin	Band	Frequency Range	Channel Space
0	0	U.S.A.	FM	87.50~108.00MHz	50kHz
			AM	530~1710kHz	10kHz
0	1	Europe	FM	87.50~108.00MHz	50kHz
			AM	530~1710kHz	9kHz
1	0	Worldwide	FM	87.50~108.00MHz	50kHz
			AM	530~1710kHz	9kHz
1	1	Japan	FM	87.50~108.00MHz	100kHz
			AM	530~1710kHz	9kHz

#62

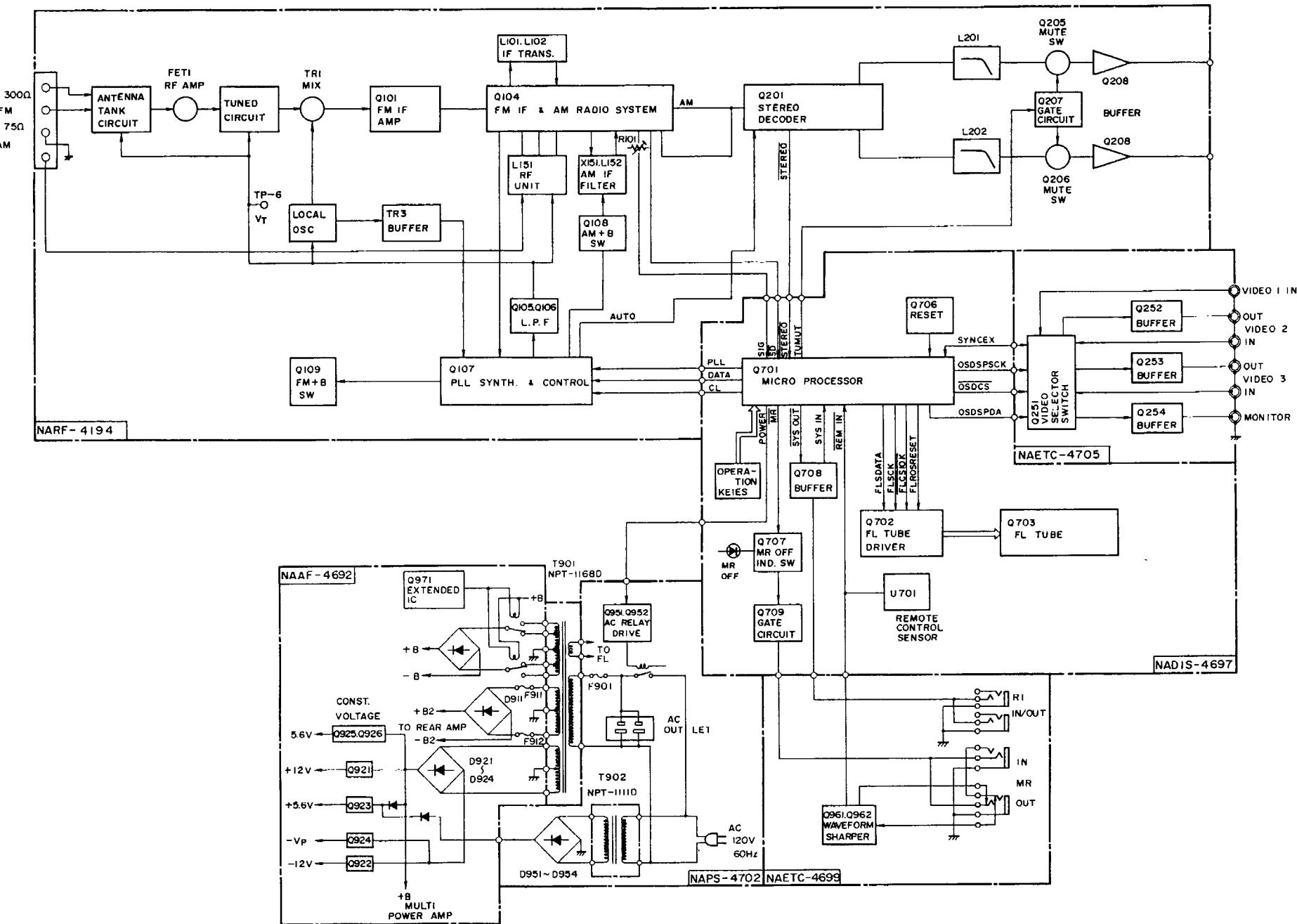
MODE	OPERATION
0	Receiver
1	Amplifier

BLOCK DIAGRAM AMPLIFIER SECTION

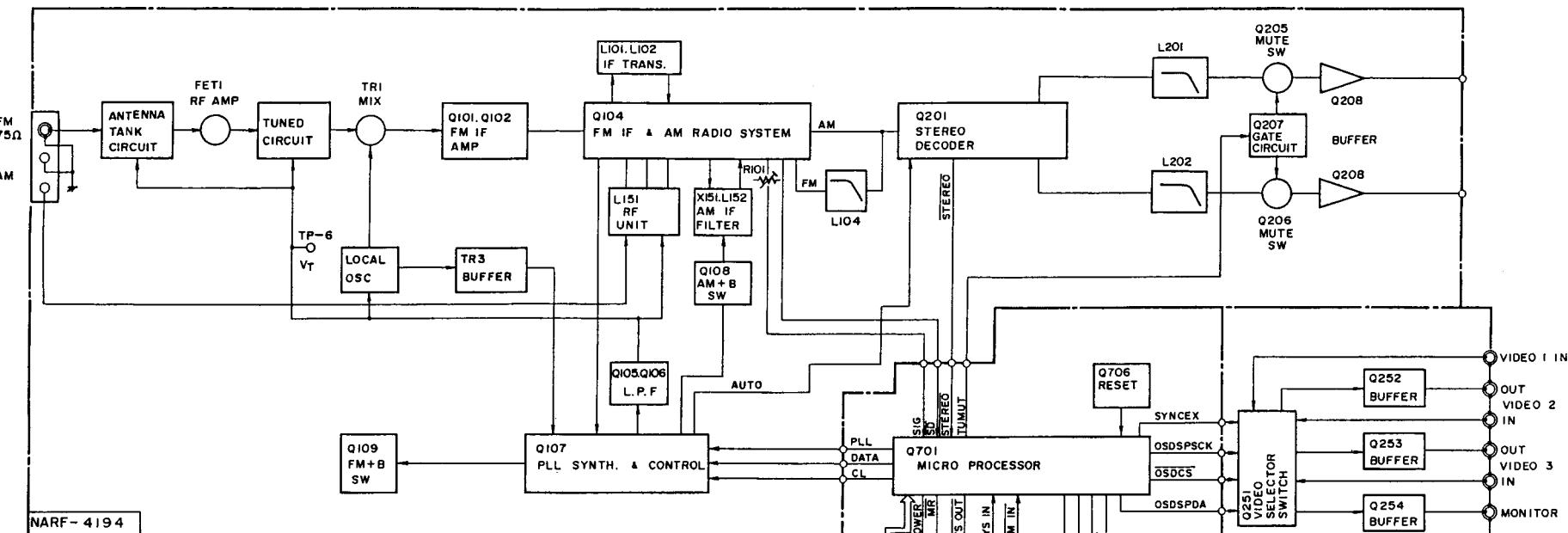


BLOCK DIAGRAM

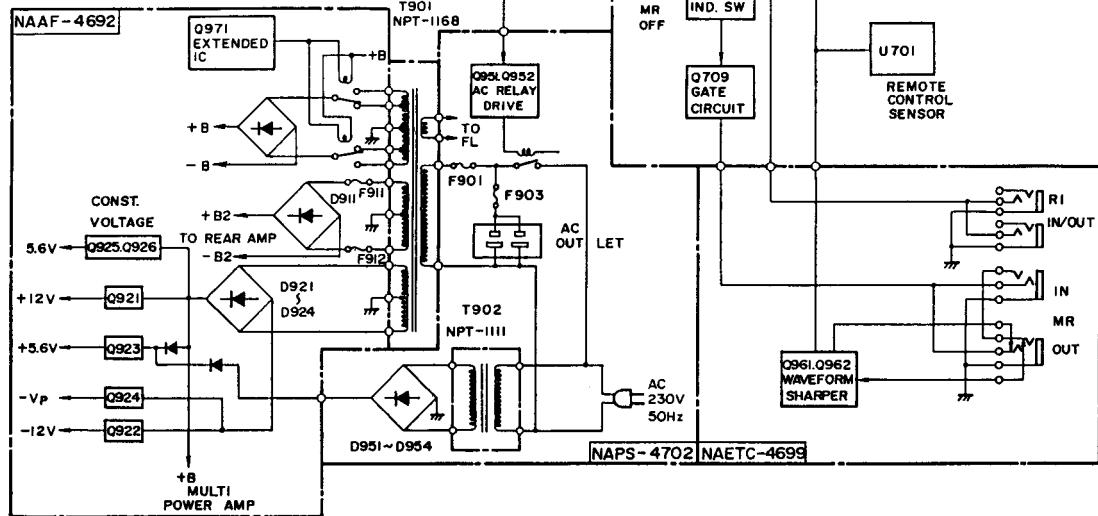
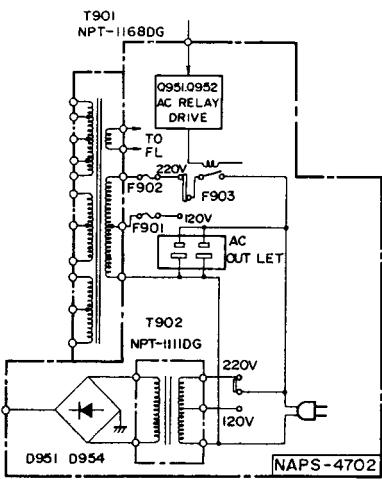
TUNER SECTION (120V model)



(Other models)



WORLDWIDE MODEL



ADJUSTMENT PROCEDURES

● Preparation

1. Input

FM mono : 1 kHz, 75kHz devi., 60dB/ μ V
 FM stereo : 1 kHz, 75kHz devi., 60dB/ μ V
 Pilot signal 19kHz 7.5kHz devi.
 AM : 400Hz 30% mod.

2. Outputs

Connect the non-inductive type resistors of 8ohms to the main speaker, remote speaker, and rear speaker terminals unless otherwise noted.

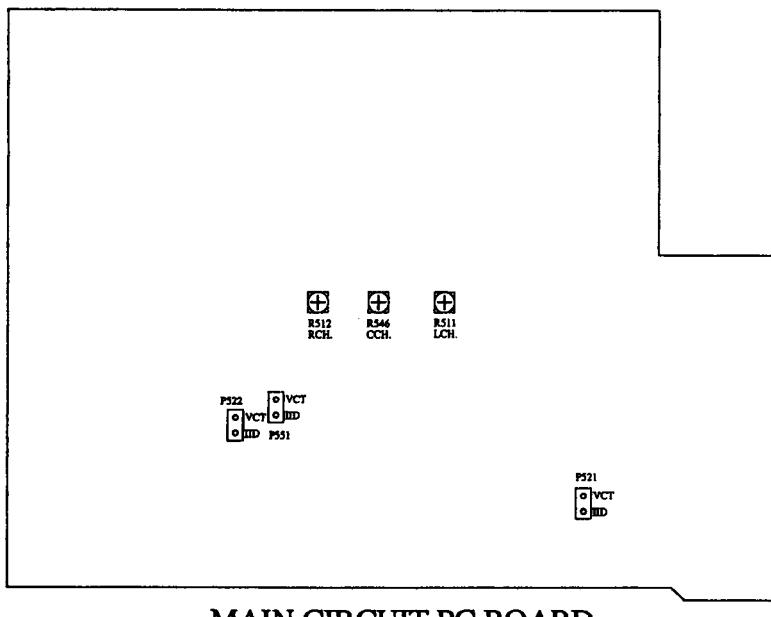
4. Standard Knob Position

TAPE MONITOR 2	OFF
VOLUME	Maximum
BASS/TREBLE/BALANCE	Center
MUTING	OFF
REC SELECTOR	SOURCE
INPUT SELECTOR	CD
SPEAKERS	ON
S.T.C.	OFF

3. Initializing of unit

1. Press and hold down the CD button, then press the POWER button.
2. "Test-" is displayed on the display for approximately 5 seconds.
3. While "Test-" is displayed, unplug the TX-SV515PROII's power cord from its AC outlet, then "Test-" will disappear.
4. Preset memory and parameters stored in memory, such as surround are initialized and will return to the factory settings.

SURROUND MODE	OFF
CENTER MODE	WIDE
DELAY TIME	20mS
MULTI/REAR LEVEL	Center
MR OFF	ON



Amplifier section

Idling Current Adjustment

Connect the DC voltmeter to the terminals P521, P522, and P551 (VCT and IID) on the main circuit pc board.

Adjust the trim resistors R511, R512 and R546 so that the indicator of voltmeter becomes 5 ± 0.5 mV.

NOTE: Adjust after switching on for 5 minutes.

FM section

Item	Step	Connection of instrument	FM SG output	Stereo modulator output	Tuning frequency	Output indicator	Adjustment point	Adjust for	Remarks
FM IF/RF	1	Fig.1	99.1MHz 1kHz 75kHz devi. 65dBf(60dB)	—	99.1MHz	DC voltmeter	L101	$0 \pm 20\text{mV}$	FM MUTE/MODE switch:ON/STEREO Repeat the steps 1 and 3 until no further adjustment is necessary.
	2					AC voltmeter	IFT on the front end	Maximum	
	3					Distortion analyzer	L102	Minimum	
VCO		Fig.2	99.1MHz 1kHz 75kHz devi. 65dBf(60dB)	—	99.1MHz	Frequency counter	R201	$19\text{kHz} \pm 10\text{Hz}$	
Stereo Distortion		Fig.3	99.1MHz Ext. mod. 65dBf(60dB)	Channel L or R 1kHz	99.1MHz	Distortion analyzer	IFT on the front end	Minimum	Don't turn more than $\pm 180^\circ$
Stereo Separation	1	Fig.3	99.1MHz Ext. mod. 65dBf(60dB)	Channel L 1kHz	99.1MHz	Channel R AC voltmeter	R202	Minimum	Maximum and same separation
	2			Channel R 1kHz		Channel L AC voltmeter		Minimum	
Muting Level		Fig.3	99.1MHz 17.2dBf(12dB) <19.2dBf(14dB)>	—	99.1MHz	Oscilloscope	R101	Signal output	

NOTE:< >:230V and Worldwide models

AM section

120V model

Step	AM SG output	Tuning Frequency	Output Indicator	Adjustment point	Adjust for
1		530kHz	Digital DC voltmeter	OSC coil on RF block L151	$1.4 \pm 0.2\text{V}$
2	600kHz 400Hz 30% mod. 60dB/m	600kHz	AC voltmeter	RF coil on RF block L151	Maximum
3	990kHz 400Hz 30% mod. 60dB/m	990kHz	AC voltmeter	L152	Maximum

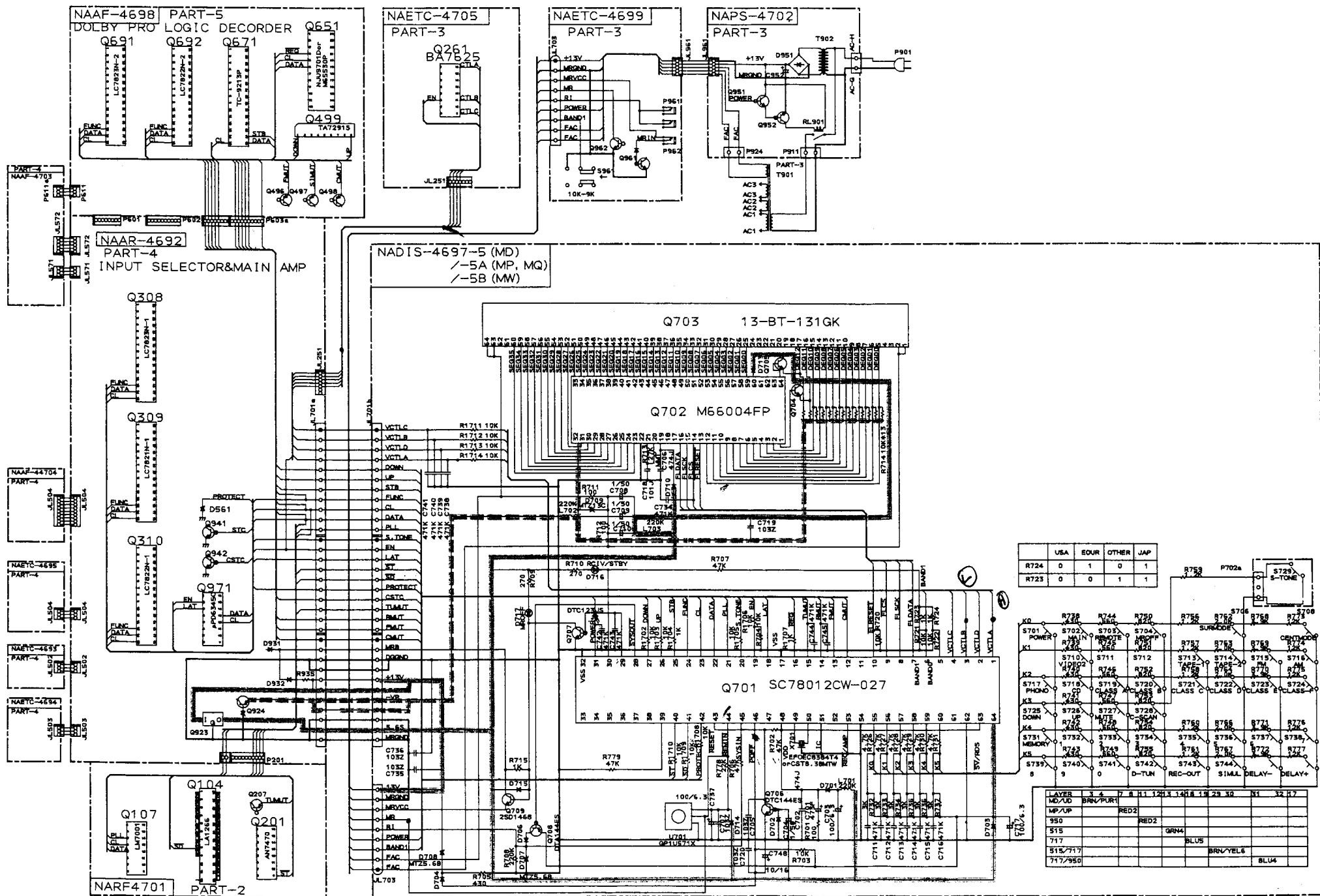
Reference Specification
 FM tuned voltage: 87.9MHz-107.9MHz
 More than 1.3V-Less than 10V
 AM tuned voltage: 530kHz-1710kHz
 $1.4 \pm 0.2\text{V}$ -Less than 9.0V

230V and Worldwide models

Step	AM SG output	Tuning Frequency	Output Indicator	Adjustment point	Adjust for
1		522kHz or 531kHz	Digital DC voltmeter	OSC coil on RF block L151	$1.3 \pm 0.2\text{V}$
2	603kHz 400Hz 30% mod. 60dB/m	603kHz	AC voltmeter	RF coil on RF block L151	Maximum
3	999kHz 400Hz 30% mod. 60dB/m	999kHz	AC voltmeter	L152	Maximum

Reference Specification
 FM tuned voltage: 87.5MHz-108MHz
 More than 1.3V-Less than 10V
 AM tuned voltage: 522kHz-1611kHz
 $1.3 \pm 0.2\text{V}$ -Less than 9.0V
 (230V model)
 AM tuned voltage: 531kHz-1602kHz
 $1.3 \pm 0.2\text{V}$ -Less than 9.0V
 (Worldwide model)

SCHEMATIC DIAGRAM (PART-1) CONNECTION DIAGRAM OF MICROPROCESSOR



A

B

C

D

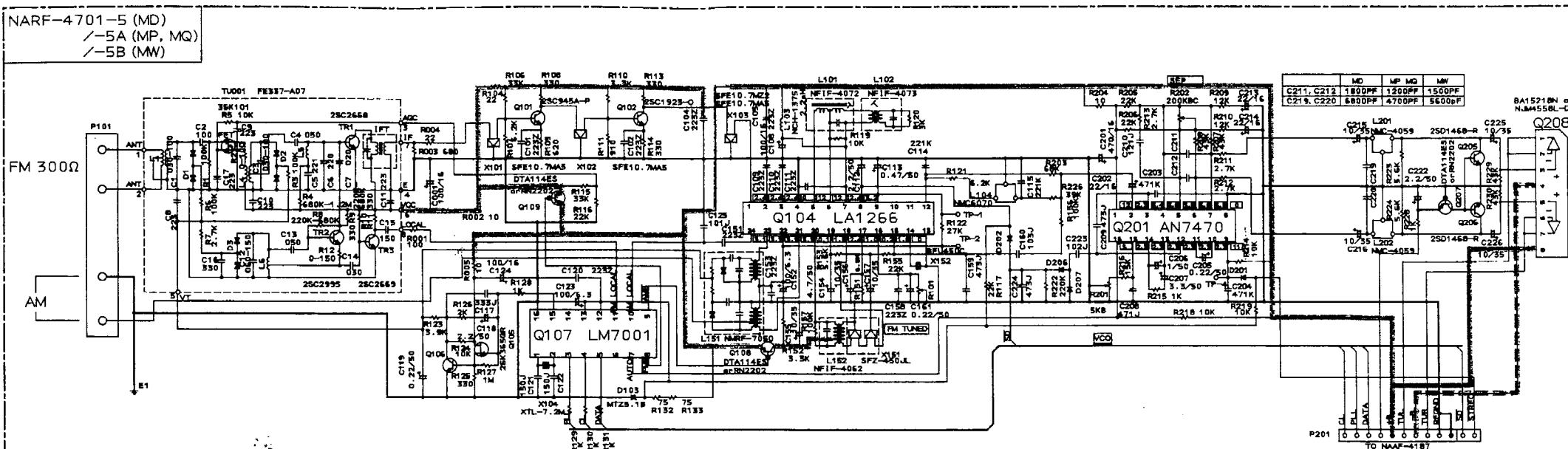
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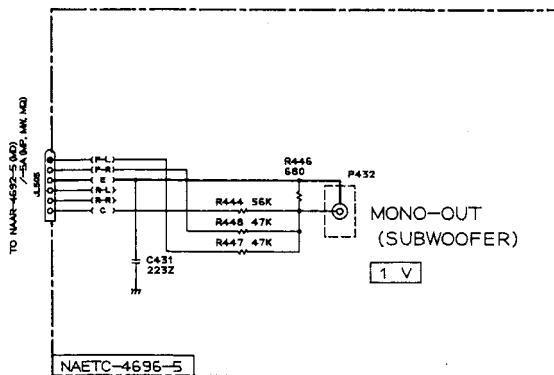
SCHEMATIC DIAGRAM (PART-2)

TUNER SECTION



SCHEMATIC DIAGRAM (PART-3)

POWER SUPPLY AND VIDEO SECTION

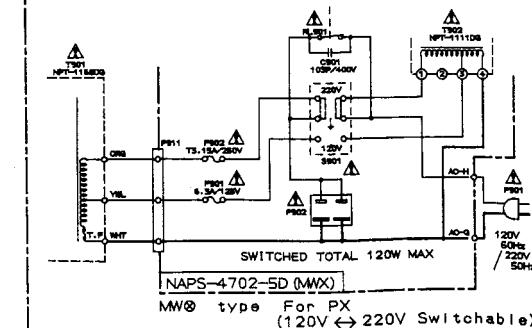
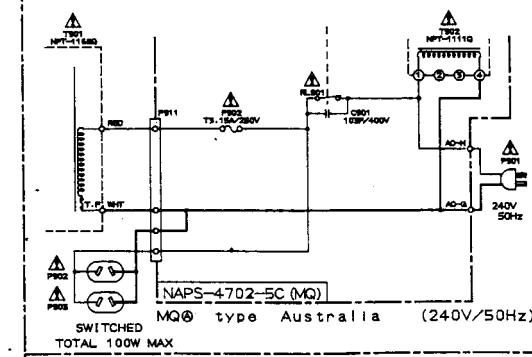
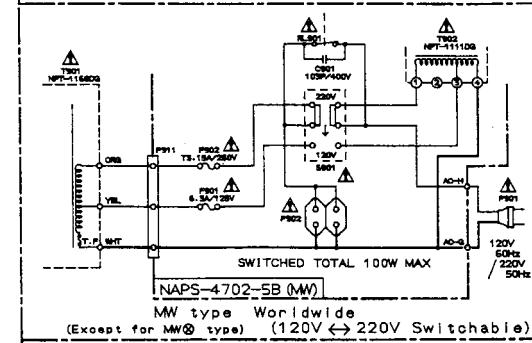
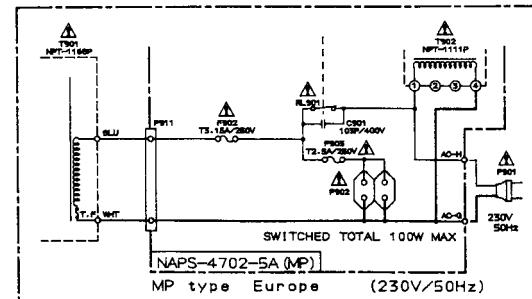
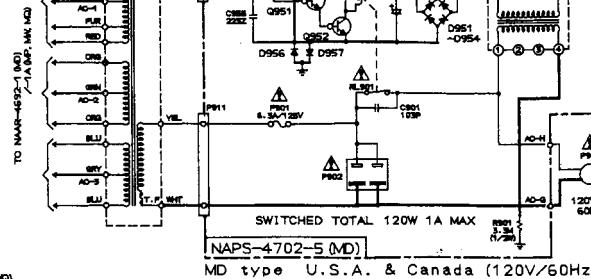
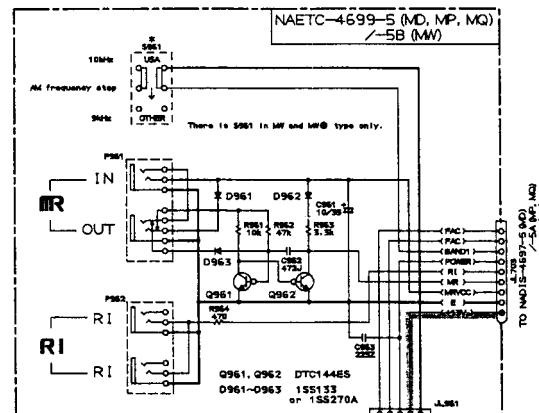
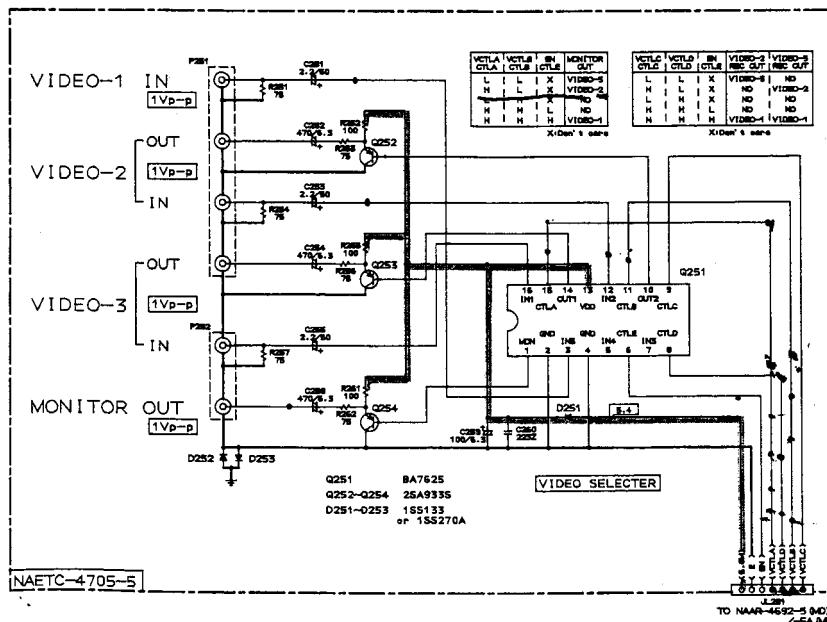


MD type : 120V/60Hz Area
 MD@ type : U.S.A.
 MD@ type : Canada

MP type : 230V/50Hz Area
 MP type : Europe (except for Germany)
 MP@ type : Germany (MODEL No. TX-SV9041)

MW type : 120V or 220V Switchable
 MW type : Worldwide
 MW@ type : For PX

MQ type : 240V/50Hz Area
 MQ@ type : Australia



A

B

c

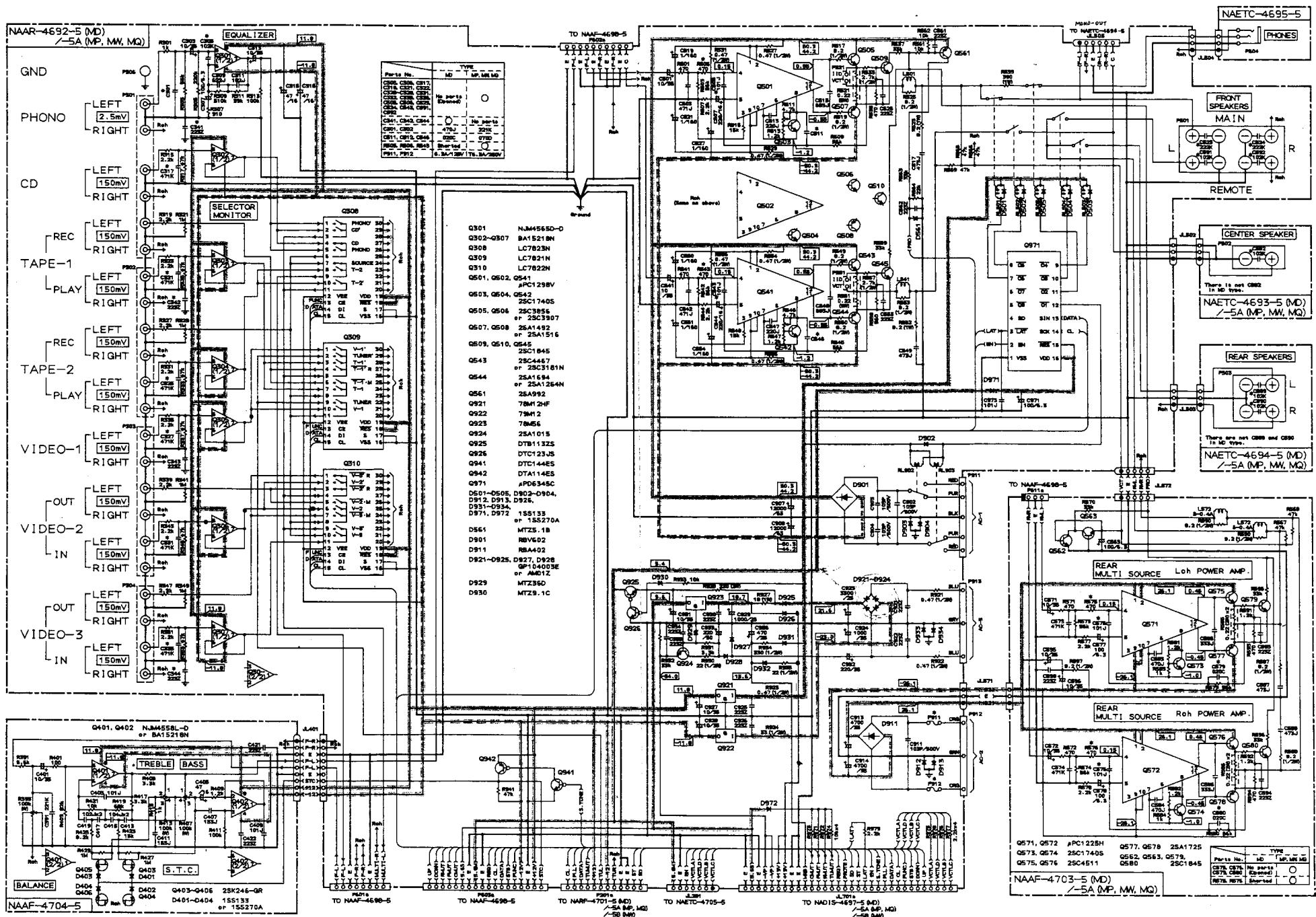
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SCHEMATIC DIAGRAM (PART-4) AUDIO SECTION



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□

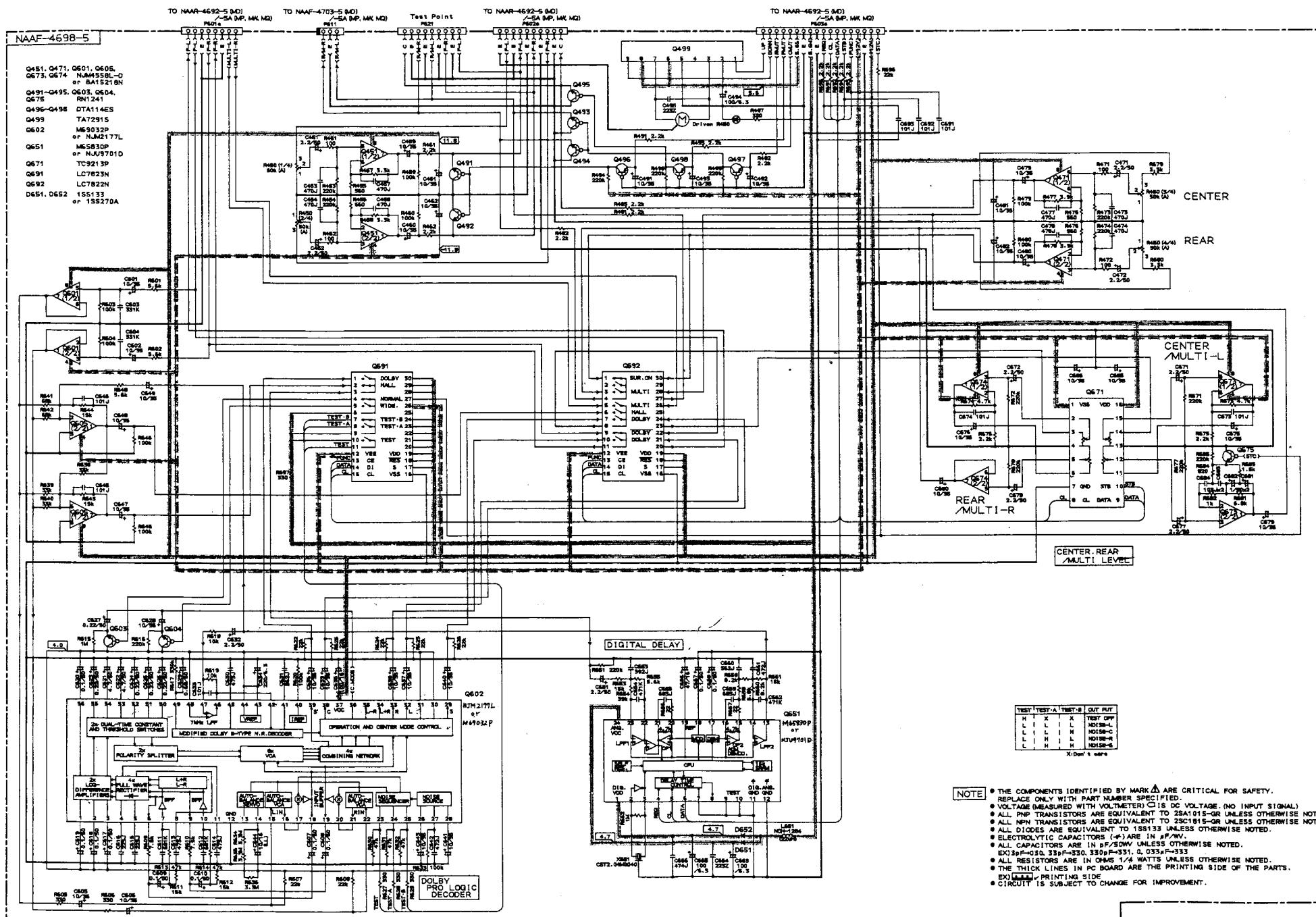
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1

SCHEMATIC DIAGRAM (PART-5)

SURROUND SECTION



NOTE

- THE COMPONENTS IDENTIFIED BY MARK A ARE CRITICAL FOR SAFETY. REFER ONLY TO PART NUMBER SPECIFIED IN THE DRAWING.
- VOLTAGE MEASURED WITH VOMETER(C) IS DC VOLTAGE (NO INPUT SIGNAL)
- ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SA1015-GR UNLESS OTHERWISE NOTED.
- ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1815-GR UNLESS OTHERWISE NOTED.
- ALL DIODES ARE EQUIVALENT TO 1SS133 UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS (μF) ARE IN μF UNLESS OTHERWISE NOTED.
- ALL CAPACITORS ARE IN PICOFARADS (PF) UNLESS OTHERWISE NOTED.
2031 = 0.00002031, 0.033 = 0.000033
- ALL RESISTORS ARE IN OHMS 1/4 WATTS UNLESS OTHERWISE NOTED.
- THE THICK LINES IN PC BOARD ARE THE PRINTING SIDE OF THE PARTS.
EX. PRINTING SIDE
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

ONKYO CORPORATION

PRINTED CIRCUIT BOARD PARTS LIST

MAIN CIRCUIT PC BOARD (NAAR-4692-5/5A)

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
ICs					
Q301	22240191	NJM4565D-D	D912,D913	223205 or	1SS270A or
Q302-Q307	22240247	BA15218N	D926	223163	1SS133
Q308	22240339	LC7823N	D921-D925	22380046 or	AM01Z or
Q309	22240280	LC7821N	D927,D928	22380035	GP104003E
Q310	22240270	LC7822N	D929	224453604	MTZ36D
Q501,Q502	22240311	μ PC1298V	D930	224450913	MTZ9.1C
Q541	22240311	μ PC1298V	D931-D934	223205 or	1SS270A or
Q921	222780125NEC	78M12HF	D971,D972	223163	1SS133
Q922	222790125	79M12		Coils	
Q923	222780565JRC	78M56	L501,L502	231209S	S-0.4A
Q971	22240211	μ PD6345C	L541	231209S	S-0.4A
Transistors					
Q503,Q504	2213284	2SC1740S-R	C303,C304	354761009	10 μ F,35V,Elect.
Q542	2213284	2SC1740S-R	C307,C308	354721019	100 μ F,6.3V,Elect.
Q505,Q506	2201653,	★ 2SC3856-O,	C309,C310	374726224	6200pF \pm 5%,50V,Plastic
	2201654,	★ 2SC3856-Y,	C311,C312	374721824	1800pF \pm 5%,50V,Plastic
	2201655,	★ 2SC3856-P,	C313,C314	354761009	10 μ F,35V,Elect.
	2202272 or	★ 2SC3907-R or	C315,C316	354744709	47 μ F,16V,Elect.
	2202273	★ 2SC3907-O	C501,C502	354761009	10 μ F,35V,Elect.
Q507,Q508	2201663,	★ 2SA1492-O,	C503,C504	374724714	470pF \pm 5%,50V,Plastic
	2201664,	★ 2SA1492-Y,	C507,C508	354742219	220 μ F,16V,Elect.
	2201665,	★ 2SA1492-P,	C515,C516	374726834	0.068 μ F \pm 5%,50V,Plastic
	2202262 or	★ 2SA1516-R or	C517,C518	374724734	0.047 μ F \pm 5%,50V,Plastic
	2202263	★ 2SA1516-O	C519-C522	354700109	1 μ F,160V,Elect.
Q509,Q510	2211732 or	2SC1845-F or	C527,C528	354700109	1 μ F,160V,Elect.
	2211733	2SC1845-E	C541	354761009	10 μ F,35V,Elect.
Q543	2202253,	★ 2SC4467-O,	C542	374724714	470pF \pm 5%,50V,Plastic
	2202254,	★ 2SC4467-Y,	C544	354742219	220 μ F,16V,Elect.
	2202256,	★ 2SC4467-P,	C548	374726834	0.068 μ F \pm 5%,50V,Plastic
	2202502 or	★ 2SC3181N-R or	C549	374724734	0.047 μ F \pm 5%,50V,Plastic
	2202503	★ 2SC3181N-O	C550,C551	354700109	1 μ F,160V,Elect.
Q544	2202243,	★ 2SA1694-O,	C554	354700109	1 μ F,160V,Elect.
	2202244,	★ 2SA1694-Y,	C907,C908	3504258	12000 μ F,63V,Elect.
	2202246,	★ 2SA1694-P,	C913,C914	3504213S	4700 μ F,35V,Elect.
	2202492 or	★ 2SA1264N-R or	C923	354753329	3300 μ F,25V,Elect.
	2202493	★ 2SA1264N-O	C924	354761029	1000 μ F,35V,Elect.
Q561	2211792 or	2SA992-F or	C927,C928	354761009	10 μ F,35V,Elect.
	2211793	2SA992-E	C929	354751029	1000 μ F,25V,Elect.
Q924	2211455	2SA1015-GR	C931	354761009	10 μ F,35V,Elect.
Q925	2213830	DTB113ZS	C932	354762219	220 μ F,35V,Elect.
Q926	2213640	DTC123JS	C933	354782219	220 μ F,50V,Elect.
Q941	221282	DTC144ES	C936	354754719	470 μ F,25V,Elect.
Q942	2213510	DTA114ES	C971	354721019	100 μ F,6.3V,Elect.
Diodes					
D501-D505	223205 or	1SS270A or	R511,R512	5210261	N06HR 5KBC,Trim
D902-D904	223163	1SS133	R517-R520	452530824	8.2 ohm,1/2W,Metal
D561	224450512	MTZ5.1B	R521,R522	4000132	0.22 ohm \times 2,5.5W + 5.5W,Metal plate
D901	22380038	RBV602	R523,R524	451630824	8.2 ohm,1W,Metal
D911	22380048	RBA402	R525,R526	452530824	8.2 ohm,1/2W,Metal
			R527-R532	452534794	0.47 ohm,1/2W,Metal

CAUTION: Replacement for transistor of mark \star , if necessary, must be made from the same beta group (H_{FE}) as the original type.

CIRCUIT NO.	PART NO.	DESCRIPTION
Resistors		
R533,R534	442522724	2.7 kohm,1/2W,Metal oxide
R539,R540	441623914	390 ohm,1W,Metal oxide
R546	5210261	N06HR 5KBC,Trim
R549,R550	452530824	8.2 ohm,1/2W,Metal
R551	4000132	0.22 ohm \times 2,5.5W + 5.5W,Metal plate
R552	451630824	8.2 ohm,1W,Metal
R553	452530824	8.2 ohm,1/2W,Metal
R554-R556	452534794	0.47 ohm,1/2W,Metal
R557	442522724	2.7 kohm,1/2W,Metal oxide
R921-R923	452534794	0.47 ohm,1/2W,Metal
R924	442523304	33 ohm,1/2W,Metal oxide <D>
	442530824	8.2 ohm,1/2W,Metal <P/W/Q>
R927	441621804	18 ohm,1W,Metal oxide
R928	441722214	220 ohm,2W,Metal oxide
R930,R935	442522204	22 ohm,1/2W,Metal oxide
R934	442523314	330 ohm,1/2W,Metal oxide
Relaies		
RL501	25065339	NRL-2P5A-DC24-046
RL502	25065379	NRL-1P5A-DC24-058
RL503,RL504	25065339	NRL-2P5A-DC24-046
RL505	25065470	NRL-2P1.25A-DC24-079
RL902,RL903	25065435	Δ NRL-1P10A-DC24-072
Fuses		
F911,F912	252166Y	Δ 6.3A-UL/T-237 <D>
	252079	Δ 6.3A-SE-EAK <P/W/Q>
Fuseholders		
F911A,F912A	25050065	Δ YSH403T
Fuse labels		
	29360622	T6.3A/250V <P/W/Q>
Plugs		
P201A	25055500	NPLG-12P475
P601A	25055498	NPLG-8P473
P602A	25055499	NPLG-10P474
P603A	25055503	NPLG-18P478
Terminals		
P301-P303	25045300	NPJ-6PDBL-159
P304	25045303	NPJ-4PDBL-162
P501	25060125	NTM-8PDMN058
Wire traps		
JL401	25050531	NSCT-9P354
JL701A	25050612 or 25050705	NSCT-32P423 or NSCT-32P509

CENTER SPEAKER TERMINAL PC BOARD (NAETC-4693-5/5A)

CIRCUIT NO.	PART NO.	DESCRIPTION
P502	25060114	NTM-2PDM048,Speaker terminal

SPEAKER TERMINAL PC BOARD (NAETC-4694-5/5A)

CIRCUIT NO.	PART NO.	DESCRIPTION
P503	25060161	NTM-4PDM087,Speaker terminal

NOTE: THE COMPONENTS IDENTIFIED BY MARK Δ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

HEADPHONE TERMINAL PC BOARD (NAETC-4695-5)

CIRCUIT NO.	PART NO.	DESCRIPTION
P504	25045255	YKB26-5009,Headphone terminal

OUTPUT TERMINAL PC BOARD (NAETC-4696-5)

CIRCUIT NO.	PART NO.	DESCRIPTION
P432	25045302	NPJ-1PDBL161,Terminal

DISPLAY CIRCUIT PC BOARD (NADIS-4697-5/5A/5B)

CIRCUIT NO.	PART NO.	DESCRIPTION
Remote control sensor		
U701	24130007	GP1U571X
FL tube		
Q703	212120	13-BT-131GK
ICs		
Q701	22240684	SC78012CW-027
Q702	22240685R9	M66004FP
Transistors		
Q704,Q705	2213284	2SC1740S-R
Q706	221282	DTC144ES
Q707	2213640	DTC123JS
Q708	2213510	DTA114ES
Q709	2212794	2SD1468-R
Diodes		
D701-D704	223205 or	1SS270A or
D706,D710	223163	1SS133
D707,D708	224450562	MTZ5.6B
D709	224451303	MTZ13C
D713-D715	223205 or	1SS270A or
	223163	1SS133
D716,D717	225142	SEL2913K,LED
Resonator		
X701	3010205	CST8.38MTW, Ceramic
Coils		
L701-L703	233411K220	NCH-1387 220K
Capacitors		
C701	3000074	0.047F,5.5V,Super
C702,C706	375524744	0.47 μ F \pm 5%,50V,Plastic
C703	354721019	100 μ F,6.3V,Elect.
C704	354780109	1 μ F,50V,Elect.
C708-C710	354780109	1 μ F,50V,Elect.
C717,C737	354721019	100 μ F,6.3V,Elect.
C748	354741009	10 μ F,16V,Elect.
Resistor		
R714	49163103413	10 kohm \times 13,1/10W,Array
Switches		
S701-S704	25035548	NPS-111-S510
S706,S708	25035548	NPS-111-S510
S710-S728	25035548	NPS-111-S510
S731-S746	25035548	NPS-111-S510
Plug		
P702A	25055510	NPLG-3P485

NOTE: <D>: 120V model only
 <P>: 230V model only
 <W>: Worldwide model only
 <Q>: 240V model only

NOTE: THE COMPONENTS IDENTIFIED BY MARK  ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
	Wire trap			Capacitors	
JL701B	25050578 or	NSCT-32P389 or	C629	354786899	0.68 μ F,50V,Elect.
	25050726	NSCT-32P530	C630	374724734	0.047 μ F \pm 5%,50V,Plastic
	Holders		C631	374725624	5600pF \pm 5%,50V,Plastic
D712A,D716A	27190843		C632	354780229	2.2 μ F,50V,Elect.
Q703A	27190913Y		C634	354722219	220 μ F,6.3V,Elect.
			C635	354741019	100 μ F,16V,Elect.
SURROUND CIRCUIT PC BOARD (NAAF-4698-5/5A)			C636-C641	354761009	10 μ F,35V,Elect.
CIRCUIT NO.	PART NO.	DESCRIPTION	C642	374724724	4700 pF \pm 5%,50V,Plastic
	ICs		C643	354761009	10 μ F,35V,Elect.
Q451,Q471	22240247 or	BA15218N or	C644	392841007	10 μ F,16V,Elect.
Q601,Q605	22240293	NJM4558L-D	C647-C649	354761009	10 μ F,35V,Elect.
Q499	22240239	TA7291S	C651	354780229	2.2 μ F,50V,Elect.
Q602	22240683 or	NJM2177L or	C653	374723924	3900 pF \pm 5%,50V,Plastic
	22240692	M69032P	C655	374726834	0.068 μ F \pm 5%,50V,Plastic
Q651	22240686 or	M65830P or	C656	354744709	47 μ F,16V,Elect.
	22240687	NJU9701D	C657,C658	353781099	0.1 μ F,50V,Elect.
Q671	22240266	TC9213P	C659	374726834	0.068 μ F \pm 5%,50V,Plastic
Q673,Q674	22240247 or	BA15218N or	C660	374725624	5600pF \pm 5%,50V,Plastic
	22240293	NJM4558L-D	C661	374724724	4700 pF \pm 5%,50V,Plastic
Q691	22240339	LC7823N	C663,C665	354721019	100 μ F,6.3V,Elect.
Q692	22240270	LC7822N	C666	375524744	0.47 μ F \pm 5%,50V,Plastic
	Transitors		C671,C672	354780229	2.2 μ F,50V,Elect.
Q491-Q495	2213631 or	RN1241-A or	C675,C676	354761009	10 μ F,35V,Elect.
Q603,Q604	2213632	RN1241-B	C677,C678	354780229	2.2 μ F,50V,Elect.
Q496-Q498	2213510	DTA114ES	C679,C680	354761009	10 μ F,35V,Elect.
Q675	2213631 or	RN1241-A or	C681,C682	354780109	1 μ F,50V,Elect.
	2213632	RN1241-B	C683,C684	374721034	0.01 μ F \pm 5%,50V,Plastic
	Diodes		C685,C686	354761009	10 μ F,35V,Elect.
D651,D652	223205 or	1SS270A or		Resistor	
	223163	1SS133	R450	5144017Y	N16RQL50KA25F,Variable,Volume
	Resonator			Sockets	
X651	3010217	CST2.04MG040	P601	25050445	NSCT-8P269
	Coil		P602	25050446	NSCT-10P270
L651	233411K220	NCH-1387	P603	25050450	NSCT-18P274
	Capacitors		P611	2000802UL	NSAS-6P758
C451,C452	354780229	2.2 μ F,50V,Elect.		Plug	
C459-C462	354761009	10 μ F,35V,Elect.	P621	25055411	NPLG-9P393
C471,C472	354780229	2.2 μ F,50V,Elect.			
C479-C482	354761009	10 μ F,35V,Elect.	RI/MR TERMINAL PC BOARD (NAETC-4699-5)		
C491-C493	354761009	10 μ F,35V,Elect.	CIRCUIT NO.	PART NO.	DESCRIPTION
C494	354721019	100 μ F,6.3V,Elect.		Transistors	
C601,C602	354761009	10 μ F,35V,Elect.	Q961,Q962	221282	DTC144ES
C605,C606	354761009	10 μ F,35V,Elect.		Diodes	
C607-C610	353781099	0.1 μ F,50V,Elect.	D961-D963	223205 or	1SS270A or
C613,C614	374724734	0.047 μ F \pm 5%,50V,Plastic		223163	1SS133
C615,C616	374722234	0.022 μ F \pm 5%,50V,Plastic		Capacitors	
C617-C620	353781099	0.1 μ F,50V,Elect.	C961	354761009	10 μ F,35V,Elect.
C621,C622	354780479	4.7 μ F,50V,Elect.	C962	374724724	4700pF \pm 5%,50V,Plastic
C623-C627	354782299	0.22 μ F,50V,Elect.		Slide switch	
C628	354761009	10 μ F,35V,Elect.	S961	25065286	NSS-22112 <W>

NOTE: <D>: 120V model only
<P>: 230V model only
<W>: Worldwide model only
<Q>: 240V model only

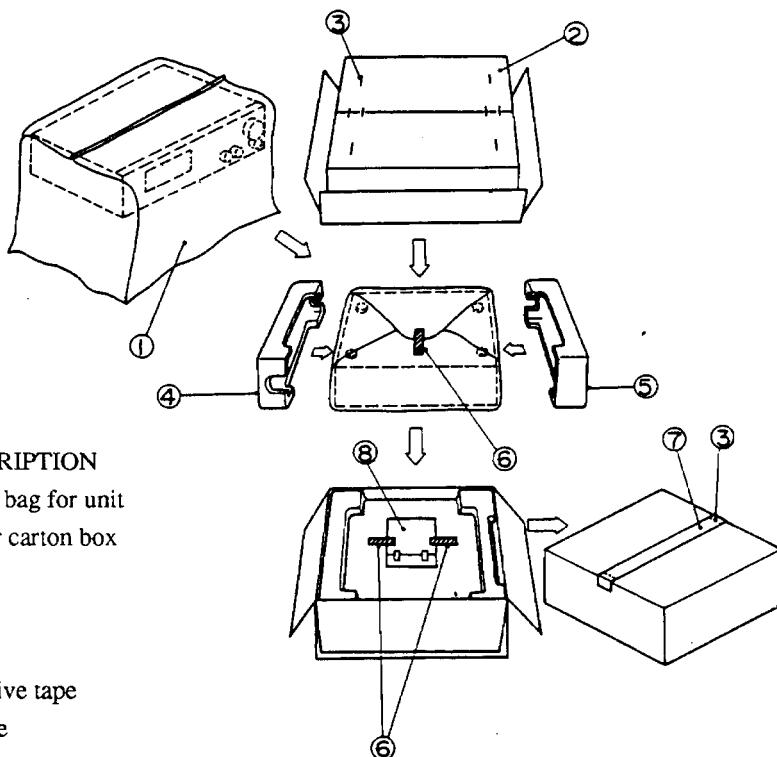
NOTE: THE COMPONENTS IDENTIFIED BY MARK **A**
ARE CRITICAL FOR RISK OF FIRE AND
ELECTRIC SHOCK. REPLACE ONLY WITH
PART NUMBER SPECIFIED.

CAUTION: Replacement for transistor of mark \star , if necessary, must be made from the same beta group (HFE) as the original type.

NOTE: THE COMPONENTS IDENTIFIED BY MARK Δ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
		Diodes			Capacitors
D955-D957	223205 or 223163	1SS270A or 1SS133	C587,C588 C595,C596	374724734 354761009	0.047 μ F \pm 5%,50V,Plastic 10 μ F,35V,Elect.
		Power transformer			Resistors
T902	2300670 2300671 2300672 2300673	Δ NPT-1111D <D> Δ NPT-1111P <P> Δ NPT-1111DG <W> Δ NPT-1111Q <Q>	R585,R586 R587-R590 R597	4000131 452530824 452530824	0.22 ohm \times 2,2W+2W,Metal plate 8.2 ohm,1/2W,Metal 8.2 ohm,1/2W,Metal
		Relay	P611A	25055234	Plug
RL901	25065248	Δ NRL-1P15A-DC12-29	JL571	25050280	NPLG-3P218
		Capacitors	JL572	25050282	Wire traps
C901	3500065A	Δ DE7150FZ103PAC400/125V,IS			NSCT-3P108
C952	354742219	220 μ F,16V,Elect.			NSCT-5P110
		Resistors			TONE CONTROL CIRCUIT PC BOARD (NAAF-4704-5)
R901	431523355	Δ 3.3 Mohm,1/2W, Solid <D>	CIRCUIT NO.	PART NO.	DESCRIPTION
R951	452530824	Δ 8.2 ohm, 1/2W, Metal	Q401,Q402	22240247 or 22240293	ICs
		Fuse			BA15218N or NJM4558L-D
F901	252166Y	Δ 6.3A-UL/T-237 <D/W>			Transistors
F902	252076	Δ 3.15A-SE-EAK <P/W/Q>	Q403-Q406	2211945	2SK246-GR
F903	252075	Δ 2.5A-SE-EAK <P>			Diodes
		Fuseholders	D401-D404	223205 or 223163	1SS270A or 1SS133
F901A	25050065	Δ YSH403T <D/W>			Capacitors
F902A	25050065	Δ YSH403T <P/W/Q>	C401,C402	354761009	10 μ F,35V,Elect.
F903A	25050065	Δ YSH403T <P>	C405,C406	354744709	47 μ F,16V,Elect.
		AC outlet	C407,C408	374721534	0.015 μ F \pm 5%,50V,Plastic
P902	25050409	Δ NSCT-4P234 <D>	C411,C412	374721534	0.015 μ F \pm 5%,50V,Plastic
	25050640	Δ NSCT-4P451 <P/W>	C413-C416	374721044	0.1 μ F \pm 5%,50V,Plastic
		Slide switch	C417-C420	374721024	1000pF \pm 5%,50V,Plastic
S901	25065437	Δ NSS-22157P <W>			Variable resistors
			R393	5104225	N11RGLC250KWT22Z,Balance
			R407,R413	5104230	N14RLC100KWT22Z,Tone
Q571,Q572	22240108	μ PC1225H			VIDEO CIRCUIT PC BOARD (NAETC-4705-5)
		Transistors	CIRCUIT NO.	PART NO.	DESCRIPTION
Q562,Q563	2211732 or	2SC1845-F or	Q251	22240373	IC
Q579,Q580	2211733	2SC1845-E	Q252-Q254	2213354	BA7625
Q573,Q574	2213284	2SC1740S-R			Transistors
Q575,Q576	2202063, 2202064 or 2202066	\star 2SC4511-O, \star 2SC4511-Y or \star 2SC4511-P	D251	22380046 or 22380035	2SA933S-R
Q577,Q578	2202053, 2202054 or 2202056	\star 2SA1725-O, \star 2SA1725-Y or \star 2SA1725-P			Diodes
		Coils	C251,C253,C255	354780229	2.2 μ F,50V,Elect.
L571,L572	231209S	S-0.4A	C252,C254	354724719	470 μ F,6.3V,Elect.
		Capacitors	C258	354724719	470 μ F,6.3V,Elect.
C563	354721019	100 μ F,6.3V,Elect.	C259	354721019	100 μ F,6.3V,Elect.
C571,C572	354761009	10 μ F,35V,Elect.			Terminals
C577,C578	354721019	100 μ F,6.3V,Elect.	P251	25045339	NPJ-4PDYE-190
C585,C586	374723334	0.033 μ F \pm 5%,50V,Plastic	P252	25045395Y	NPJ-2PDYE-221

PACKING VIEW



REF.NO.	PART NO.	DESCRIPTION
1	29100034-1	Styren bag for unit
2	29052785Y	Master carton box
3	282301	Staple
4	29091615BY	Pad R
5	29091614BY	Pad L
6	261504	Adhesive tape
7	29110071	PP tape
8	Accessory bag ass'y	
	29341975Y	Instruction manual
	29341978Y	Instruction manual <P/W/C>
	29341980Y	Instruction manual <W>
	2010200	Connection cord RI
	3010054	UM-3,Two batteries
	24140252Y	RC-252S,Remote control transmitter
	232140	NMA-3057,AM loop antenna
	292111Y	FM antenna <D>
	292112Y	FM antenna <P/W/Q>
	25065462Y	YAE21-0237, FM antenna adaptor <W/Q>
	25055018	CV-K-1,Conversion plug <W>
	25055251	CV-CP,Conversion plug <PX>
	29365019A	Warranty card <N>
	29365021	Warranty card <PX>
	29358002K	Service station list <N/PX>
	29100097-1Y	Styren bag for accessory

NOTE: <D>:120V model only
 <P>:230V/240V models only
 <W>:Worldwide model only
 <N>:U.S.A. model only
 <PX>:PX model only
 <C>:Canadian model only

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